

EFFECTS OF MICROPLASTICS INGESTION ON OXIDATIVE STRESS AND MONOAMINERGIC ACTIVITY OF FISH BRAINS

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Nowadays, microplastics (MPs); and the adsorbed pollutants (POPs) are considered a global threat to marine ecosystems. This study describes the effects of POPs and MPs ingestion on fish brains through the assessment of oxidative stress biomarkers and monoaminergic neurotransmitters on gilthead seabream (*Sparus aurata*) as fish model. Juveniles were experimentally submitted to three different dietary treatments for 90 days: Control treatment (C) consisted of standard feed; Virgin treatment (V) contained feed enriched with 10% of MPs; and Marinated treatment (M) consisted of feed with 10% of MPs and was exposed to seawater in an anthropogenic impacted sea area for 2 months in order to enrich the plastic with the pollutants associated to the water column. Sampling was made at the start of the experiment (T0), at the end of the dietary treatments (T90), and at the end of a posterior detoxification period of 30 days (T120). Results evidenced that a MPs and POPs enriched diet increases the activity of some of the oxidative stress biomarkers (e.g. CAT and GST). Moreover, this study reported for the first time alterations on dopaminergic and serotonergic system activities on seabream brains, indicating potential neurofunctional effects from MPs ingestion. In addition, results showed a tendency to recover enzymatic and brain monoaminergic neurotransmitter levels after a 30-day detoxification period.